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Catalog of Courses

1954-1955

WILLIAMSPORT TECHNICAL INSTITUTE

Established 1920

WILLIAMSPORT, PENNSYLVANIA

A Division of the Williamsport Public School System

THE WILLIAMSPORT TECHNICAL INSTITUTE

Founded 1920

Announcement of Courses

in

Vocational and Technical Education

A Division of the School

District of the City of Williamsport

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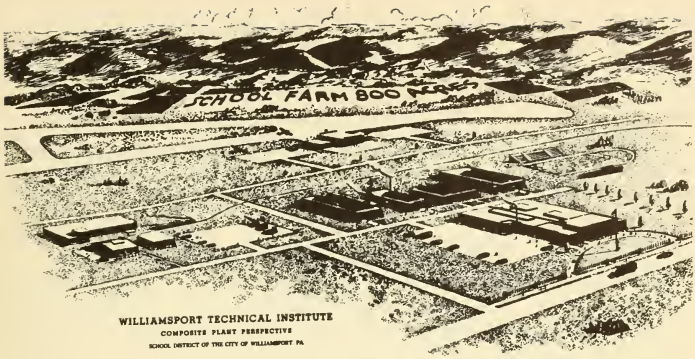


WILLIAMSPORT TECHNICAL INSTITUTE
COMPOSITE PLANT PERSPECTIVE
SCHOOL DISTRICT OF THE CITY OF WILLIAMSPORT, PA

FOREWORD

THE WILLIAMSPORT TECHNICAL INSTITUTE is a public, non-profit vocational-technical school dedicated to the belief that public education should suit itself to the needs of the individual and to the community in which it is practiced.

The main purpose of THE TECHNICAL INSTITUTE is to prepare young men and women to fill worthwhile positions in industry, commerce, agriculture and business, and to prepare them to the point that they are adequately equipped to compete with skilled workers already in service. A second but equally important phase of the educational service offered by the school gives further training to employed workers in order that they may advance to positions of greater responsibility and superior opportunity.

The INSTITUTE is a unit of the School District of the City of Williamsport. About 560 of its present total enrollment of 1,042 are boys and girls of high school age. Approximately 180 students are handicapped young men and women who have been sent to the INSTITUTE by the Pennsylvania, Ohio and West Virginia Bureaus of Rehabilitation. The remainder of the student body is made up of about 322 adult students, 156 of whom are veterans.

In addition to these full-time students, the enrollment of the school is complemented by approximately 3,000 evening school students.

The INSTITUTE'S buildings and grounds in the City of Williamsport cover more than thirty acres, exclusive of the classrooms and large hangar at the local airport and a farm at nearby Muncy, which is used in training agricultural students.

A WORD TO THE STUDENT

The WILLIAMSPORT TECHNICAL INSTITUTE was established, as such, in 1941. It developed from a small beginning as a high school vocational shop that ventured into adult education by retraining veterans of World War I. From that time, more than thirty years ago, it has continually expanded to meet the educational needs of the community and the ever-expanding area it serves.

The INSTITUTE is founded on WORK. Its students learn to do by doing. Its instruction is largely based on "live projects." Theory is taught by the laboratory and shop instructors as a necessary basis for completing the job at hand.

The training you receive at TECH will be comprehensive. It will prepare you for the industries and business of tomorrow.

The faculty of the WILLIAMSPORT TECHNICAL INSTITUTE intend that the training they give you shall be the foundation of your future career.

They believe that you will enjoy the period you spend at the school and in the friendly community surrounding it.

KENNETH E. CARL, Director.

THE COURSES OF INSTRUCTION

Thirty-eight full-time courses are offered by the WILLIAMSPORT TECHNICAL INSTITUTE.

On the following pages each course is outlined in detail. However, you will find it helpful to read the preliminary explanation given on this page so that you can better evaluate what each course comprehends.

The Practical and the Theoretical

Practical and theoretical training supplement each other in all courses. Practical training, we believe, deserves a prominent place in a technical program because the resultant skills are fundamental to the success of the graduate. They give him his initial employment opportunity and in very many cases provide the continued source of his employment.

However, merely manual skill is not enough to assure continued employment and advancement. In addition, the student must develop an understanding as to why things are done, and must have a good background of theoretical and related knowledge.

Hence, related theory and technical study requires about one-third of the student's time. He learns not only how to do things, but why they are done in a specific way. He becomes acquainted with the fundamental technical principles of the mechanical and physical sciences. Finally, he develops the ability to apply these principles in the solution of practical problems in his chosen field.

Some of the laboratory and shop buildings

GENERAL INFORMATION

THE CITY OF WILLIAMSPORT

Williamsport, a city of 50,000 people, is located in the beautiful West Branch Valley of the Susquehanna River, about eighty-five miles north of the capital city of Harrisburg.

It is a town of diversified activities, having many industries, including electronics plants, furniture factories, textile mills, steel mills and numerous others. The majority of TECH'S adult students have part-time jobs in these industries.

Recreational facilities are unsurpassed. Williamsport is the home of the Little League. It is surrounded by some of the best fishing streams and hunting country in the eastern United States. Boating and swimming may be enjoyed within walking distance of the center of town. In the winter season, skating and skiing may be enjoyed within a short distance of the city limits, and the visits of New York theatrical and concert companies add to the cultural life of the community.

Cooperation With Industry

Since the establishment of the school, shortly after World War I, it has maintained close cooperation with the employers of its graduates, that is with industry, commerce and business. Examples of this cooperation are the scholarship programs now in progress at the school. These programs are requested by forward-looking industrialists who wish to protect their businesses against the increasing and critical shortages of skilled men. These industrialists, by setting up scholarships, have made it possible for a number of unskilled men to obtain technical training in one or other of the many departments at TECH. Following this training, these men are able to enter the industry or business for which they have been prepared as skilled and highly paid employees.

Another example of this cooperation is the fact that many employers in Pennsylvania and other states east of the Rockies make a practice of calling Tech's employment office before seeking elsewhere for trained personnel. TECH, for its part, consults closely with business and industry regarding its courses. If, for example, the demand for men trained in a certain field begins to diminish, courses training men for that field are drastically curtailed or entirely eliminated. On the other hand, requests by employers may cause new courses to be inaugurated.

Placement of Students

The placement of its graduates in worthwhile positions is, of course, the ultimate aim of the school. A school which does not succeed in placing its graduates is doing only fifty per cent of its job.

Students at the **TECHNICAL INSTITUTE** are not "just training"; they are training for jobs. Responses from a recent survey covering four hundred **TECH** graduates who had spent a year or more in training showed that almost ninety per cent of them were working in occupations for which they had been trained at the school. Among the remaining ten per cent were a number of graduates who had changed their work objectives for reasons not connected with the training they had received at **TECH** and some who had elected to go on to college.

Housing for Students

A wide choice of accommodations exist for single men. Rooms may be obtained for as little as $3.50 a week; room with board costs from about $12.50 to $17.50 a week. Houses and apartments for men with families are obtainable but are not as plentiful as single rooms. A list of available accommodations is kept up-to-date by the school.

Rooms are comfortable and convenient

Who May Enroll

There are few restrictions. In a few courses leading to positions for which the employer may request a high school diploma, high school graduation or its equivalent is preferred. However, the important criterion is **CAN THE PROSPECTIVE STUDENT BENEFIT BY THE TRAINING HE SEEKS.**

The school is open to young men and women over 16 years of age. However, it reserves the right to dismiss from classes any students who do not or cannot make satisfactory progress.

TECH students have always been recognized as an excellent group of young men and women; and only those students able and willing to apply themselves to their studies and who conduct themselves in a decorous, honest and business-like manner are permitted to remain.

How to Enroll

Apply at the registration office of the school, 1005 West Third Street, Williamsport, Pa., or write stating in which course you are interested. Better still, spend a whole day visiting the school's thirty acres of laboratories, classrooms and shops, the training facilities at the Williamsport Airport and the beautiful model farm operated by the agriculture department of the school.

Recreational Activities

TECH students are offered a number of cultural and recreational opportunities. A modern, fully equipped gymnasium, and practice playing fields are available and make possible a varied sports program. Dances are held at intervals during the cooler months. Swimming parties and picnics are arranged during the summer. Most recreational activities are arranged by student committees, under the supervision of members of the faculty.

Intramural sports are emphasized

The School Year

THE TECHNICAL INSTITUTE operates on a twelve-month basis. This year-round operation offers the student two important advantages. It permits him to prepare himself for a job in the shortest possible time, and it teaches him the habit of continuous application. This habit is of great importance in the industrial and business world.

Classes are in session for six hours a day, from 8:45 a. m. to 3:21 p. m., daily, except Saturday and Sunday.

Vacations

Regular school vacations are scheduled for legal holidays such as Easter, July Fourth, Armistice Day and Labor Day. About one week's vacation is given at Christmas and two more weeks during the summer.

Part-Time Employment While in School

A large number of TECH students wish to earn a part of their expenses while going through school. A member of the faculty is responsible for bringing together these students and possible employers. Constant contacts are maintained with the personnel departments and the owners of local plants who for many years have employed TECH students on a part-time basis. These efforts succeed in placing students in suitable jobs within a week or so of their enrollment.

Equipment

The TECHNICAL INSTITUTE is completely equipped with modern hand and machine tools and laboratory equipment. These duplicate and compare favorably with those used in industry. Furthermore, TECH'S shop and laboratory practices closely parallel those found in industry. Thus TECH graduates are able, when they enter industry, to compete from the beginning on an equal basis with their fellow workmen.

Books and Supplies

Laboratory and shop supplies are of the quality and type used in industry. They are supplied to the student.

Textbooks are also supplied, and may be used by the student so long as he remains in school.

Tuition

Tuition charges are paid monthly, in advance. These charges are calculated on a yearly basis, according to charges set under Pennsylvania School Law. Consequently they may vary slightly from year to year. The charges are the same for all courses and cover the cost of instruction, textbooks, tools and supplies.

Diplomas

Students who successfully complete a course of instruction are granted a diploma by a committee of the faculty. This diploma is signed by the president of the directors of the School District of the City of Williamsport, the director of the WILLIAMSPORT TECHNICAL INSTITUTE, and the head of the department in which the student has studied.

Should a student leave school before the designated length of his course has expired, and provided he enters the industry or business for which he has trained, he may upon approval of the faculty, still be granted a diploma when he has worked for the employer in his field for a period in excess of the time he did not complete in his course.

Length of Courses

All courses may be adapted to an individual by the deletion or addition of certain course units. Where proof or examination can verify that the student has previously completed a particular course unit or units it will not have to be repeated.

Special units from other courses may be added if desired. Also special unit courses will be given in the case of physically handicapped students who may be unable to complete the full course and who wish to specialize in certain units.

Field Trips

Field trips are arranged for students in the various departments of the school whenever it may be shown that such trips would be of value in furthering the training of the student.

Building construction students, for example, are taken to observe the techniques used on new building being constructed in the vicinity; drafting students are taken to visit plants having large, modern drafting departments; printing students visit printing establishments, newspapers and other industries of educational value to them, and so on.

Guest Lecturers

From time to time TECH students are able to hear nationally known engineers and other lecturers who come to Williamsport to speak before one or other of the various professional societies to which members of the faculty belong. These organizations include, among others, the Institute of Radio Engineers, the Society of Automotive Engineers and the American Society of Tool Engineers. Also, during the school year, students may hear speakers from such organizations as the Bell Telephone Company, the Westinghouse Electric Company, and the Sylvania Electric Products, Inc.

Only skilled craftsmen and technicians who have had many years' experience in industry and business are accepted on the faculty of the school. Besides this invaluable practical experience, each instructor must complete his professional education by obtaining, through college training, a teacher's certificate from the Pennsylvania Department of Public Instruction.

WILLIAMSPORT TECHNICAL INSTITUTE FACULTY

Carl, Kenneth E., Director

Brantner, Seymour T., Coordinator

Flowers, Charles E., Registrar

Bailey, John D., Diagnostic Leader

Baldwin, Margaret, Mrs., Secretarial Training

Bales, Harry C., Machine Shop Practice

Bardo, Lewis H., Machine Tool Making

Barr, Arthur E., Aviation Mechanics "A"

Bauer, Carl S., Related Math and Science

Best, William S., Sign Painting

Billman, Charles L., Electrical Supervisor

Bloom, I. Wayde, Distributive Education

Brass, Clyde L., Construction Equip. Mechanics

Bressler, James P., Agriculture

Burkhardt, Walter L., Related Mathematics

Cotner, Clyde C., Building Construction

Crouse, J. Carl, Supervisory Trng. and Arch. Draft.

Dawes, Clinton B., Radio

Deibert, Jack C., Printing

Derickson, Cloyd O., Highway Safety

Eddinger, George C., Commercial Art

Elison, George W., Diesel Mechanics

English, Sherman V., Drafting

Finn, James G., Office Machine Service and Repair

Foulds, Charles M., Automotive Mechanics

Flynn, Donald M., Diesel Mechanics
Fry, Samuel C., Drafting
Gilbody, Eric., Machine Shop Practice
Grenoble, Frank C., Building Construction
Guild, Arthur R., Radio
Harlan, Lynn B., Machine Shop Practice
Harrington, R. A., Radio Communications
Hennigan, Don D., Machine Shop Practice
Hitchens, William, Patternmaking
Hoffman, William, Aviation Sheet Metal
Homisak, William, Accounting
Hough, John W., Electrical Construction
Jones, Fred R., Drafting
Kackenmeister, Carl, Diagnostic Leader
Kast, H. Eugene, Automotive Mechanics
Koehler, William A., Industrial Visitation
Laurenson, Chester A., Machine Shop Practice
Lepley, Joseph S., Related Science
Linck, Judson K., Related Electricity
Long, Richard C., Rural Electrification
McIntyre, Raymond E., Drafting
Mueseler, Ewing W., Automotive Mechanics
Miller, William, Highway Safety
Nipple, Miriam, Power Sewing-machine Operation
Palmer, Ramon H., Rel. Science and Rel. Math.
Pannebaker, C. Frank, Aviation Mechanics "E"
Patterson, A. K., Related Mathematics
Preston, Benjamin H., Drafting
Schalles, Paul H., Aviation Mechanics
Schreiber, Chester G., Electrical Construction
Shaffer, Gorman S., Machine Shop Practice
Shultz, Maurice R., Electrical Construction

Sick, Joseph G., Agriculture

Smertneck, Joseph A., Radio

Stitzel, William, Construction Equipment Mechanics

Straub, J. Wayne, Printing (Offset Lithography)

Steinbacher, George, Plumbing

Thomas, Robert G., Welding

Wagner, Mason S., Building Construction

Walters, Thomas L., Accounting

Wargo, Michael, Social Studies

Wheeland, Curtis L., Automotive Mechanics

Wilkinson, Charles E., Automotive Mechanics

Williams, Bernard, Welding

Wilson, Gordon B., Woodworking

Young, Myrtle, Mrs., Plant Nurse

Zeigler, Ralph E., Sheet Metal

Office

Kraushear, Louise, Mrs., Clerk

Little, Sara, Miss, Clerk

McCarty, Edna L., Mrs., Clerk

Whitehead, Roy E., Clerk

Service Employees

Colburn, Fred, Farm Manager

DeRemer, Harry, Tool Room Attendant

Jedamzik, Fred, Tool Room Attendant

Mushello, Michael, Repairman (Electric)

Parsons, William, Tool Room Attendant

Ring, Joseph, Tool Room Attendant

Schreiber, Chester, Tool Room Attendant

Schweiker, Robert, Tool Room Attendant

Sipe, John, Repairman (Machine Shop)

Sones, George, Tool Room Attendant

Stull, Lee, Repairman (Machine Shop)

Szendry, Stephen, Tool Room Attendant

ACCOUNTING

The Accounting course stresses the preparation of well-trained personnel who have mastered the principles of bookkeeping and of higher accounting.

The course further aims at preparing office managers, auditors, and specialists in certain fields, such as income tax, building and loan and municipal accounting.

Business is demanding that the person for this type of work be capable and efficient, and that they show ability in all particulars. The person with this background has little difficulty being placed and promoted with the leading firms of the country.

Course Units: General business training, mathematics of finance, elementary accounting, advanced accounting, office management, typing, office machines, auditing, income tax accounting and business English. 2 years.

Instructions on the proper use of the plow

AGRICULTURE, GENERAL

The general agriculture course is based on directed practical experience chiefly on the school farm. It provides training in animal and poultry husbandry together with actual production of field crops. It is designed primarily for adults who wish to combine practical farming experience with enough theory of management so that they will be able to conduct an actual farming program, and are capable of analyzing the problems of modern agriculture. Previous experience is not essen-

tial, but the student is expected to have a strong aptitude for farm work.

Course Units: Soil management, poultry, farm shop and equipment, vegetable gardening, dairy husbandry, field crops, fruit growing, farm shop and equipment, animal husbandry, farm management and farm mathematics, marketing and salesmanship, and farm shop and equipment. 3 years.

AVIATION MECHANIC, "A" LICENSE

This course prepares for the Civil Aeronautics Authority examination for "Aircraft" mechanic. Certain related and theoretical subjects are presented to broaden the training and experience of the individual beyond the minimum required for the license. Airport service work is included. Instruction is given at the school hangar located on Williamsport's modern airport.

Course Units: Aerodynamics, mechanical drawing, aircraft woodwork, aircraft welding, aircraft sheet metal, electrical systems, fuel systems, fabric-covering-doping, rigging and assembly, civil air regulations, and airport servicing. 1 year.

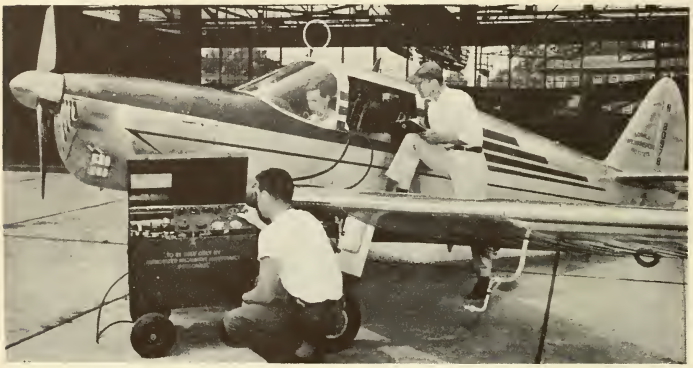
Students become skilled craftsmen

AVIATION MECHANIC, "E" LICENSE

A parallel course to Aviation Mechanic "A" License but preparing for the Civil Aeronautics Authority examination for Engine Mechanic. Certain related and theoretical subjects are presented to broaden the

education and experience of the student beyond the minimum required for the license. Actual work experience is gained on "live" engines.

Course Units: Powerplant theory and principles of operation, shop practice and procedures—use of forms, mechanical drawing, powerplant design and construction, carburetors and fuel injection systems, supercharging systems, ignition systems, starting—generating—regulating systems, fuels and fuel systems, lubricants and lubrication systems, civil air regulations, inspection—magnaflux—and dimensional check, disassembly, overhaul, repair, and assembly, powerplant installation, operation and trouble shooting, powerplant instruments, block testing, powerplant maintenance, and propellers. 1 year.



Technical and scientific training is emphasized

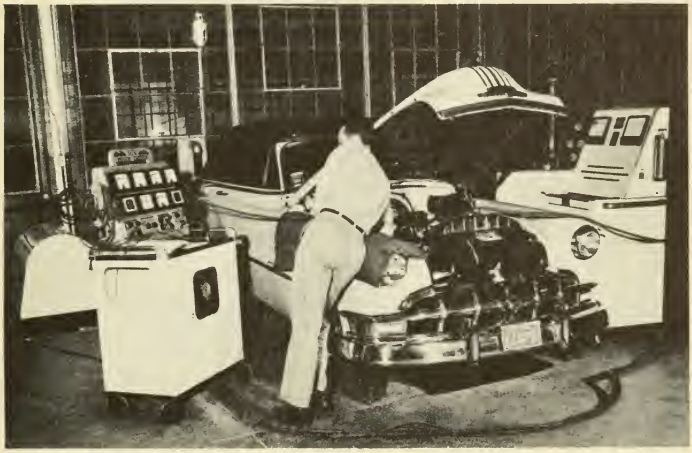
AUTOMOBILE MECHANIC—(AUTOMOTIVE SERVICE)

This course gives a thorough preparation for entering the automotive garage and service field. It includes a study of all types of internal combustion engines and automobile equipment.

The student is given a thorough preparation in every aspect of automotive maintenance and repair including the more specialized fields such as wheel alignment and balancing, carburetion, ignition, test and tune-up procedures.

Improvements in modern automobiles and equipment require that automotive mechanics have a thorough technical training which can be secured best in a well equipped school. Both theoretical training and practical experience are given on all phases of automotive maintenance.

Course Units: Machine, hand tools and bench work, engine service and repair, cooling systems, transmission and clutch, steering, front and rear axles, braking systems, chassis work and lubrication, electrical systems, fuel systems, engine operation diagnosis and tune-up, body work and finishing and welding. 3 years.



Students use modern equipment

BUSINESS ADMINISTRATION

The Business Administration Course emphasizes the preparation of personnel interested in the fields of manufacturing, utilities, selling, and finance.

This type of person should be able to assume the leadership type of position, such as, office supervisor or manager, or junior executive.

Since a broad area of information is covered, and a thorough knowledge is expected, these persons will have many opportunities to advance in their chosen vocation.

Course Units: General business training, office management, business mathematics and statistics, elementary and cost accounting, business law, banking, insurance, investment, marketing and merchandising, typing, office machines, and English. 2 years.

CARPENTER AND BUILDING CONSTRUCTOR

This is a basic program for students who wish to obtain a broad knowledge of building construction. The student receives instruction in the use of the common tools, modern materials, and methods used in present day construction industry. He acquires actual practice in building, construction, and repair work. This course prepares for entrance into the construction field in a variety of occupations. Many will enter the industry with the objective of skilled carpenter or craftsman, but the all-round instruction and technical background will help a large proportion of the students to qualify as foremen or building superintendents once they have acquired the necessary experience.

Course Units: Hand tools and their uses, use of screws—nails—clamps—etc., filing and sharpening, sanding and finishing, power tools and correct operation, roof coverings and sidings, supports and scaffolds, construction experience, elements of architecture, home design, concrete construction—design and control, block and brick work, welding, and cost and estimating. 3 years.

Skill is developed on real building projects

COMMERCIAL ARTIST, ILLUSTRATING

The course in Commercial Art prepares persons artistically inclined for professional work in either art or illustration. The work consists of drawing and painting in all media: pencil, charcoal, water-color, or oils. A broad training is given in basic design, composition, perspective, methods and professional practice as applicable to advertising arts.

Course Units: Elementary drawing and painting, advanced drawing and painting, basic design and composition, airbrush technique as applied in advertising art, lettering as applied in advertising art, perspective, methods and materials, and practical application. 3 years.

Student using modern airbrush equipment

COMMERCIAL ARTIST, TECHNICAL ILLUSTRATION

This course specializing in the technical illustration side of commercial art covers the field of general industrial illustration. The student is given basic training in mechanical drawing, changing mechanical drawings into perspective views for reproduction, and visual aids. It includes: perspective drawing, shades and shadows, phantom drawings (known as X-ray), exploded views, broken away drawings, airbrush wash drawings, color and photo-retouching. The student is also taught general layout, composition of advertising copy, theory of photo-engraving for line half-tone and color separation.

This course is for the serious minded, diligent student who is interested in this type of work and who wishes to be well equipped for this type of work as their career.

Course Units: Drafting, perspective, shades and shadows, drypoint (pencil, crayon), airbrush technique, color, and general illustration practice. 3 years.

CONSTRUCTION EQUIPMENT OPERATOR AND SERVICEMAN

This course will consist of the maintenance, servicing and operation of heavy construction equipment such as motorized blade grader, carry-all scraper, bulldozer, ditch digger, crane, shovel, etc. The emphasis will be on repair and service to such equipment, but each qualified student will learn the essentials of operation for the several types of equipment. The student will become a practical technician in earth moving.

Men who successfully complete the course will be qualified to enter the construction field as maintenance men, service men, or apprentice operators.

Course Units: Machine—hand tools and bench work, principles of the internal combustion engine, diesel engine maintenance, lubrication, maintenance of equipment, operation of equipment, rigging—hitches—couplings, and slings, welding, and related mathematics—science—and surveying. 2 years.

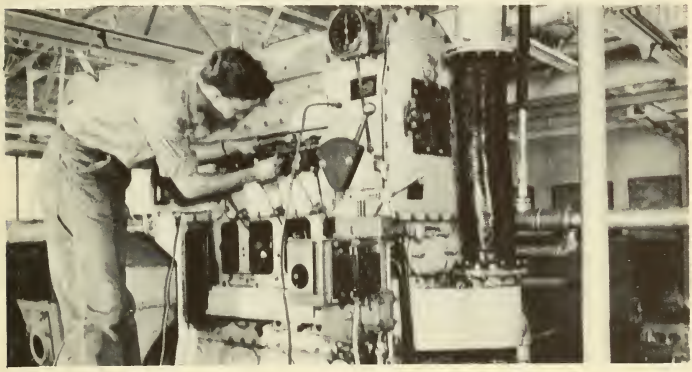
Students operating modern construction equipment

DIESEL MECHANIC

The Diesel Mechanic course is a practical course in the repair and operation of diesel and diesel-electric equipment. The Diesel Department of the Technical Institute is one of the best-equipped diesel schools

in the Eastern United States. Instruction is available on marine, stationary, and portable equipment. Students in this course are prepared for entrance into field jobs as diesel engine mechanics or operators.

Course Units: Machine—hand tools—bench work, principles of the internal combustion engine, combustion—fuels—and fuel injection system, diesel starting, lubrication, operation—testing—and power measurement, transmission—clutch—and power applications, pumps—instruments—and auxiliary equipment, maintenance of modern diesel, elementary metallurgy—mechanics and physics of heat, electric theory, and welding. 2 years.



Diesel engine trouble shooting

DRAFTSMAN, ARCHITECTURAL

The architectural drafting course prepares for the position of draftsman in architectural establishments. It includes training in the established drafting practices, and in art, design, estimating, and construction necessary to permit the graduate to deal with all the common problems of the architect's assistant.

Course Units: Study of architectural techniques, architectural blueprint reading, frame details and construction, foundation and wall construction, construction of windows—dormers—and shutters, roof and cornice construction, computation of sizes and strength of material, doors and entrance details, porches—their design and construction, design and construction of fireplace and chimneys, built-in equipment (design of), concrete and concrete block construction, heating—air conditioning—electrical planning, residential plumbing and sewage disposal, brick—

steel—and masonry construction, development of techniques in the design and planning of the house, specifications and other legal forms, practicum, model design, representation of detail, making display drawings, orders of architecture, shades and shadows, history of architecture, landscaping for the home, building materials, details and construction of special features and details, advanced design, data sheets, strength of materials (advanced), reinforcing concrete design (advanced), use of level on transit and mapping, history of architecture (advanced), rural architecture, mechanics of materials. 3 years.

Architectural drafting students working on design problems

DRAFTSMAN, MECHANICAL

The mechanical draftsman is responsible for the making of detail drawings for the purpose of conveying engineering ideas to the shop.

The purpose of this course is to provide a broad and thorough knowledge of mechanical drafting and is designed to parallel industrial drafting as closely as possible, thus making the transition from school to industry easy.

A graduate can qualify as a senior draftsman or junior designer and is prepared for a variety of industrial and manufacturing establishments.

For greatest success a high school education or the equivalent with an aptitude for mathematics and science are necessary. With experience and continued study, graduates may rise to very responsible positions.

Course Units: Basic drafting, drafting technique, drafting standards, standard practice, shop practice, advanced practice drawing, related classroom work, and layout of small machines. 4 years.

Individual instruction for all

DRAFTSMAN, STRUCTURAL

In this course the student learns to design and detail wood, steel, and concrete structures and forms to carry heavy loads safely. Bridges and skeleton frames of industrial buildings are examples. The graduate will be qualified to work in an engineer's or architect's office on this type of work.

Course Units: Use of instruments, descriptive geometry, basic drafting, special studies, building codes, estimating, specifications, a practical problem, working drawings, building construction, plumbing, heating, electrical work, structural design, structural detailing, building materials, and practical applications. 2 years.

ELECTRICIAN

The electrician course is a broad, basic, and a well-balanced course in practical electricity. The student's time is divided between electrical theory, practical laboratory instruction, and job experience.

The student is taught to lay out, assemble, install and test electrical fixtures, apparatus, control equipment, light and power systems of buildings or other construction projects.

Projects are planned and installed from blueprints and specifications. Complete armature and motor repair are taught. Such phases

of electrical work as magnetic switch coils, holding coils, and transformer ratios are thoroughly covered in the program.

After having completed this program of study, the student should have a good foundation to qualify eventually as an all-round electrician. He should also have a good knowledge of the industrial applications of basic electrical concepts so that he might qualify as a technologist in the electrical field.

Course Units: Signal wiring, light wiring, power wiring, telephone connections, appliance repairs, motor repairs, electric theory—DC, electric theory—AC, installation of conduits and wiring, connecting motors and controllers, electronic industrial control, machine shop practice, switchboards, trouble shooting, and electric light plants. 2½ years.

Electrical theory is important

EXECUTIVE BUSINESS COURSE

The specific objective of this course is to train young men and young women, veteran or non-veteran, after a sufficient general business orientation, in a particular field of specialty, such as Accounting, Secretarial Training, and Business Administration. Naturally, this course will train these persons so that they will be useful, productive, and contributing citizens in the economic world of work.

Course Units: English grammar and application, general mathematics and practical application, industrial history and commercial geography, economics and economic problems, general science, bookkeeping, typing and business machines, law—psychology—and sociol-

ogy, general business training, advanced bookkeeping and accounting, auditing and income tax, report writing, shorthand, typing, advanced office practice and filing, office management, filing, marketing and merchandising, banking—insurance—investments—and real estate. 3 years.

Executive business training

FARM MECHANIC

The person who wishes to engage in mechanized farming or to repair and service agricultural equipment will find that this course is what he needs. The program includes basic and advanced instruction in all of the trades and types of skills required to operate and repair modern agricultural equipment.

The excellent shop facilities of the TECHNICAL INSTITUTE are used in teaching the repair and maintenance of all types of mechanized and electrical farm equipment. Since these shops are all well equipped and each instructor is an expert in his field, the student receives a thorough training in the mechanical skills required on the farm.

Instruction is given in all the practical phases of electricity, the maintenance of automotive and tractor equipment, working with sheet metal and blacksmithing, the proper installation and maintenance of

plumbing and water supply systems, electric and acetylene welding and fabrication.

Course Units: Machine shop, auto shop, welding, and agricultural equipment. 1½ years.

The student learns to make his own repairs

GLASS BENDER, NEON SIGN SERVICEMAN

The art of bending and pumping tubing for the advertising trade is now an important and profitable business. As a student, you first learn the properties of glass and the characteristics of the materials you use. Then you are taught to bend right angles, "U" and circular bends, script, block letters, and pumping operations. All bending and pumping operations are taught using 12mm and 15mm tubing.

The course also includes apparatus blowing and repairing of pyrex diffusion pumps, glass manometers, manifold set-up and maintenance, and the fabrication of pressure gages. Modern lighting problems are constantly studied, and cold cathode tubes are made and field tested by the students.

When this course is taken in conjunction with sign painting, the student then possesses a rounded experience which will permit him to do any type of sign work.

Course Units: Properties of glass, angle bends, U-bends, circular bends, simple apparatus blowing, bombarding and pumping, and related subjects. 1 year.

Making a script-type neon sign

PATTERNMAKER, WOOD

Patternmaking is the technique of preparing, shaping, or building wood and other adaptable materials into models. These models are used in the foundry to make molds into which the molten metal is poured to produce castings. The work is chiefly in the woodworking field with certain types of metal work and foundry practiced as associated activities. The course consists of units of work arranged in flexible, progressive stages and selected according to the principles of molding involved and to the difficulties encountered in the construction.

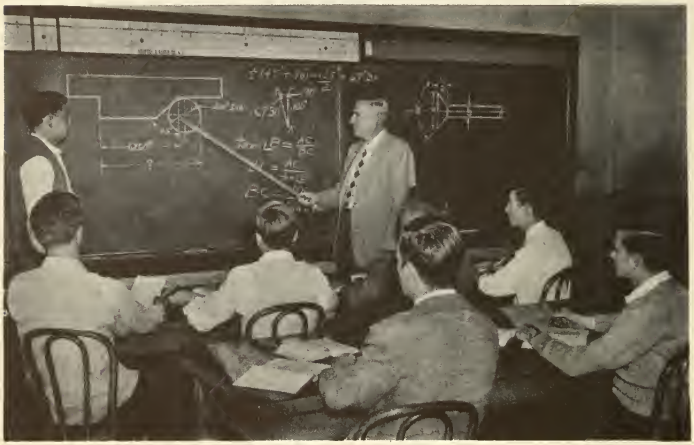
Patternmaking offers excellent employment opportunities for students who have creative abilities and the desire to become highly skilled craftsmen. Graduates of this course should be able to qualify for the minimum journeyman classification in various pattern shops. Graduates of the Patternmaking Course are often accepted by employers as having had the equivalent of an apprenticeship. There is a large demand for well-trained craftsmen in this field.

Course Units: Bench work, lathe work, core-prints, pattern construction, core-box construction, woodworking machines, pattern requisites, blueprint reading, master patterns, and foundry practice. 3 years.

VOCATIONAL-INDUSTRIAL RELATED SUBJECTS

The length of course depends upon the number of credits the veteran needs to complete his high school course.

Course Units: English III, English IV, U. S. History, problems of democracy, solid geometry, algebra I, shop courses, chemistry, physics, biology, trigonometry, industrial arts, algebra II, and mechanical drawing. Length varies.

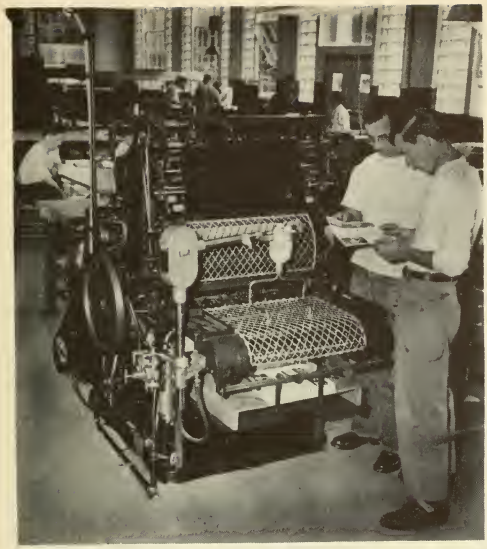


A class in technical mathematics

PLUMBER

The student who completes the plumbing course is thoroughly trained in all phases of plumbing. In the beginning the fundamentals such as mathematics, blue-print reading, the use of tools, pipe threading and fitting are taught. Next the layout of soil, waste, and vent pipes is taught. Hot and cold water distribution for domestic use, sewage systems and the maintenance of household and industrial plumbing is thoroughly covered. Lead work and joint wiping is given all advanced students. Students who successfully complete the plumbing course will find that they are proficient in all phases of the trade.

Course Units: Plumbing fundamentals, layout of soil—waste—and vent pipes, cold and hot water distribution, sewage, lead work and joint wiping. 3 years.



Modern printing by offset lithography

GRAPHIC ARTS

Printing is both a great manufacturing industry and one of the arts. Persons who are mechanically inclined and who possess creative imagination find it a satisfying occupation. It is so closely interwoven with our professional, business, and personal life that it is one of the most stable occupations in which to earn a livelihood.

This is a course which requires much originality and patience. The student should have a sincere desire to learn this trade. The applicant should have a high school education or the equivalent and possess good mechanical aptitude. The printing course at the TECHNICAL INSTITUTE is a broad course which gives the student a thorough knowledge and basic skills in both the letterpress and offset lithography printing fields.

The course includes training which can lead to employment in the printing industry as hand compositor, plate maker, platen press operator, automatic press operator, or as a general all-round printer in a small plant. Students also receive fundamental training in typography, design, layout, copy preparation, and estimating.

Course Units: Hand composition, presswork, photolithography, and bindery. 2 years.

MACHINE TOOL OPERATOR

The machine tool operator course is training in the operation of the various machine tools. It is designed to give training and experience in the operation of a few machine tools which will prepare the student for jobs as tool room machine operators and production machine operators. The student may select certain machines upon which he may wish to specialize and in which he is particularly interested.

The course is especially well adapted to blind and other physically handicapped students.

Course Units: Blueprint reading, drill press, shaper, engine lathe, milling machines, grinding machines, turret lathe, and automatic screw machines. 2 years.

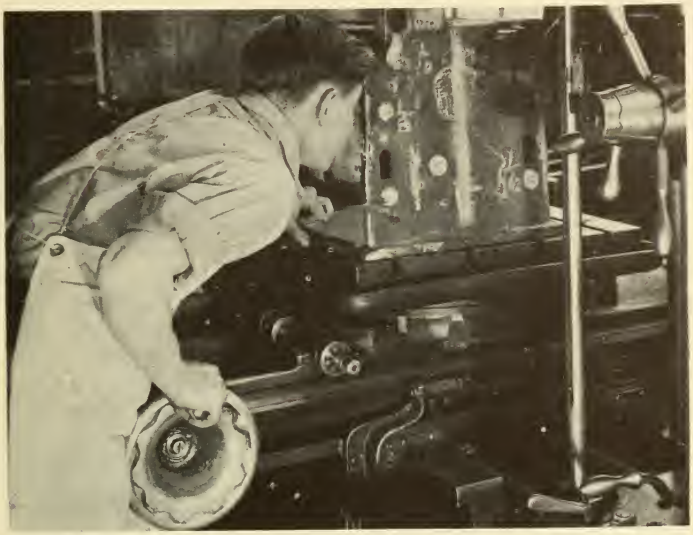
Students learn their craft on modern industrial equipment.

MILLMAN

This course gives a thorough preparation for entering woodworking, planing mill or furniture plants. It includes all types of operation and set-up of woodworking machines and the other miscellaneous equipment needed to manufacture wood products.

The training is centered around the actual working and operation of these machines, making jigs and fixtures to be used on the job concerned. The student receives instruction in the use of common tools, types of materials to be used and the best method to apply his ability. The student will also have the basic training necessary to move up the ladder in industry to become a foreman or supervisor.

Course Units: Industrial safety, procurement, lumber yard and dry kiln, rough mill, finish mill, sanding, machine and assembly control. assembly (cabinet), finishing, packing and shipping, and drawing and blueprints. 2½ years.



Precision boring in the machine shop tool room on a large horizontal boring machine

MACHINIST II

This is "all-round machinist" training, and it is second only to tool-making in the degree of expertness required. The training includes the operation and set-up of all common machine tools, bench work, elementary tool and fixture work, machine repair and production operations. The student who completes this course can enter industry with the objective of becoming a general machinist, millwright, maintenance machinist, or job setter.

Course Units: Bench work, drill press, engine lathe, shaper and planer, milling machine, boring machines, grinding machines, turret lathes and automatic screw machines, blue print reading, and shop mathematics. 3 years.

OFFICE MACHINE SERVICEMAN

Outstanding opportunities are available to men trained in servicing office machinery. Men with a pleasant personality and with mechanical skills beyond those of the ordinary mechanic will find employment opportunities with the large manufacturers of office equipment, with appliance sales agencies, or in their own small businesses.

Men with various physical handicaps frequently find this field of work a good solution to their vocational problems. Physically handicapped students, however, should confer with authorized guidance centers, the State Bureau of Rehabilitation, or the school authorities before finally selecting the course.

The student is taught to diagnose troubles in the machine by inspecting, disassembling, and examining the moving parts or other mechanism. The proper method of adjusting, tightening, setting, and other parts, using all hand tools, is covered thoroughly. Broken or defective parts are removed and repaired, or replaced with new ones. Worn machines are completely rebuilt to factory standards.

Course Units: Shop practice, typewriters, adding and calculating machines, duplication machines, addressing and platemaking machines, and related subjects. 3 years.

Students learning to repair and service office machines

PAINTER, SIGN

The instruction offered in sign painting gives the student a broad background which will enable him to make a start in his own business or to work for a commercial sign shop.

The student is taught to visualize and sketch the design for any type commercial sign, to complete the sign in different media, and then to properly locate and install it.

Course Units: Basic principles of lettering, posters, bulletins, trucks, outlining and shading, use of gold, silver, and aluminum leaf, commercial displays, pen and ink drawings, window signs, and screen process. 2 years.

Student completing a commercial sign

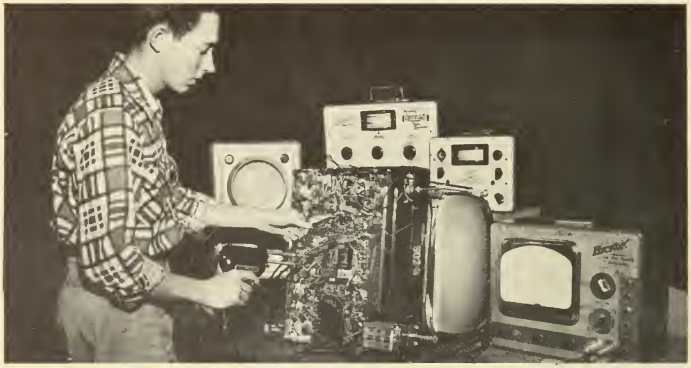
RADIO AND TELEVISION SERVICING

Radio and television servicing is a specialized course for students who wish to enter the radio and television field as servicemen in the employ of radio and television dealers, as technicians employed by manufacturing plants or engineering firms, or who wish to conduct a radio and television service business of their own.

In this course the student is given a thorough understanding of how the many circuits of a radio and television receiver operate; but more emphasis is placed on practical work. Therefore, the student is required to construct and test all the basic circuits of radio and television receivers, public address systems and record players under the direction of instructors who have had many years in the radio and television field. Having thus mastered the basic principles of radio and television theory and practice, the student is finally put to work on "live" jobs, that is he spends many weeks trouble shooting on radio and television receivers

and other types of electronic equipment he will later encounter on the job.

Course Units: Basic radio and television physics, advanced radio and television physics, basic radio and television laboratory practice and techniques, advanced radio and television laboratory practice and techniques. 2 years.



Checking a television receiver

RADIO COMMUNICATIONS AND ELECTRONICS

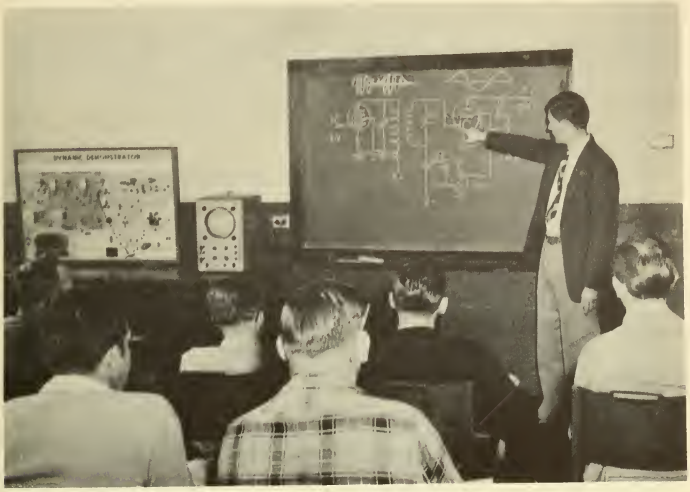
This program of study is designed for those who wish to enter airline, marine or landline stations as communications operators, or who wish to become broadcast station engineers. The course offers a thorough theoretical and practical training, with emphasis placed on the modern radio development of ultra high frequency technique, and in the low frequency field or the application of electronics principles to industrial controls.

Employment possibilities in the communications and industrial electronic fields are very good. Hundreds of new radio stations are being erected and applications for new station licenses will increase as frequency modulation and television apparatus becomes available.

Candidates for entry to this course must be high school graduates.

Course Units: Basic radio physics, advanced radio physics, specialized electronics theory, communications theory, basic laboratory

practice and technique, advanced laboratory practice and technique, radio code practice, typewriter operation, radio law and traffic procedure. 3 years.



Radio Communications students studying circuit analysis

TOOLMAKER

The toolmaker and diemaker are the most highly skilled men in the machine shop.

The toolmaker specializes in the construction, repair, and calibration of machine shop tools, jigs, fixtures, and instruments.

The diemaker specializes in the construction and repair of dies for forging, punching, stamping or other metal-forming work.

Both of these craftsmen operate modern machine tools and perform other highly skilled work such as laying out, fitting, and die manufacturing. The first part of the course is the same for both trades, but, in the advanced sections, the student elects to specialize in either toolmaking or diemaking.

Course Units: Bench work, drill press, engine lathe, shaper-planer, milling machine, boring machines, grinding machines, heat treating, turret lathe and automatic screw machines, inspection, blue print reading, diemaking, and shop math. 4 years.

SECRETARIAL TRAINING

Trained secretaries, both male and female, are in great demand today. Business needs competent persons to take care of the work load which falls to busy executives.

W. T. I. has gained an enviable reputation for training secretaries.

The secretarial training course aims at the achievement of a mastery of the fundamental learning for secretaries, as well as the specific knowledge and skills which are involved in successful office work. The course also aims at the acquiring of proper work attitudes, as well as efficient service to the various offices in and about the vicinity of Williamsport.

Course Units: Shorthand, dictation and transcription techniques, english and spelling, office practice, typewriting, arithmetic, commercial law and bookkeeping (optional). 2 years.

An advanced secretarial training class

TOOL DESIGNER

The tool designer is the middle man between the engineering department and the production job. He is a toolmaker who works on the drawing board. His job is to design special tools and select machines that will produce parts with the necessary speed and accuracy. Since shop practice and toolmaking along with drafting are important phases of the tool design training, one half of the training is given in actual shop practice.

To be a good designer requires aptitude, ingenuity, and imagination comparable to that of the engineer. The tool designer might well

be called the engineer of the production line. By being ingenious he will reduce, to a minimum, the number of operations necessary to complete a piece part. It is the combination of toolmaker, draftsman, and inventor, that makes the tool designer one of the key men of modern production and manufacturing.

The Tool Design and Technology course as given at the TECHNICAL INSTITUTE is approved by the American Society of Tool Engineers.

Course Units: Tool room practice, gage manufacture, heat treating, tool and diemaking, welding fabrication, production practices, process engineering, manufacturing and tool cost, manufacturing analysis, basis drafting room practice, design and use of cutting tools, gage design, die design, jig and fixture design, and general and related theoretical subjects. 4 years.

Students learn all phases of a trade

SHEET METAL WORKER

This course may be used by the student to become a general sheet metal worker and to set up his own business or to become a sheet metal helper. Men interested in air conditioning installation, and other trades utilizing sheet metal, will find it an excellent course. All the fundamentals of the trade are taught; fundamentals of general sheet metal work, seams, hems, wiring, soldering, using the brake, squaring shears,

combination machines, grooving machines, sheet metal work for the tinner, roofer and the furnace machines.

Course Units: Sheet metal drafting, forge practicing, metal forming, combination machines, soldering, power machines, bench work, Oxy-Acetylene welding, and related information. 2 years.

Electric welding a repair job.

WELDER, ARC

Those who complete this course are qualified as general electric-arc welders. Training is given in the theory and practice of all phases of electrical welding. Practical experience is given throughout the course.

Jobs in electric welding are found in industrial establishments such as the following: boiler shops, heavy equipment manufacturers, structural steel fabrication, railroads, steel mills, and welding shops.

Course Units: The electric welding trade, adjustment of a welding machine for welding electrodes, flat position welding, vertical position welding, vertical downhand welding, horizontal vertical welding, overhead welding, pipe welding line joints, pipe welding flat position, pipe welding—vertical position, pipe welding—overhead position, cast iron welding, control of heat and molten metal, sheet metal welding, physical testing of molds, railroad welding, structural steel welding and tests, maintenance of welding equipment, forge practice, blue print reading, shop mathematics, and heat treating. 9 months.

WELDER, ACETYLENE

This course is designed for the man who wishes to become a general acetylene welder. Welding training is given on all thicknesses of ferrous and non-ferrous metals, with all common tools and appliances.

Considerable oxy-acetylene welding is usually done in industrial plants such as sheet metal, light steel fabricating, iron foundries, garages, pipe shops, and job welding shops.

Course Units: Oxygen—oxygen cylinders and uses, acetylene generators and acetylene cylinders, flat position welding, vertical position welding, horizontal vertical welding, overhead welding, pipe welding line joints, pipewelding—flat position, pipewelding vertical position, pipewelding—overhead position, cast iron welding, physical testing of welds, wrought iron welding, stainless steel welding, sheet aluminum—plate aluminum—cast aluminum, die cast or white metal, copper and copper alloy welding, lead welding, monel welding, bronze welding, acetylene cutting, operation and cutting with radio-graph, metal spraying, aircraft welding. 1 year.

WELDER, COMBINATION

The combination welding course takes in all the phases of both the Electric and Acetylene Welding courses.

A combination welder is a more valuable worker to an employer than a man that can weld with but one of the other processes.

There is nothing hard and fast about the work program or environment that he will find wanting if he can qualify as a good welder. For instance the Job or Repair shop; this work calls into play every trick of the welder's art and hands him one challenge after another. The oil fields, pipe line, and construction jobs offer great opportunities and the wages are among the highest. The fabricating plants offer an attractive career. Here he can observe different details and engineering designs. The more observant he is, the greater his chances are to advance because of his practical knowledge. There are many more situations that offer an opportunity for a good welder—the shipbuilding, aircraft, railroads heavy road machinery, and industrial pipe contractors. In all of these there is work to be done and they afford abundant opportunity.

Course Units: The electric welding trade, adjustment of a welding machine for welding electrodes, flat position welding, vertical position welding, vertical downhand welding, horizontal vertical welding, overhead welding, pipe welding line joints, pipe welding flat position, pipe welding—vertical position, pipe welding—overhead position, cast iron welding, control of heat and molten metal, sheet metal welding, physical testing of welds, railroad welding, structural steel welding and

tests, maintenance of welding equipment, forge practice, blue print reading, shop mathematics, heat treating, oxygen—oxygen cylinders and uses, acetylene generators and acetylene cylinders, flat position welding, vertical position welding, horizontal vertical welding, overhead welding. pipe welding line joints, pipewelding—flat position, pipewelding—vertical position, pipewelding—overhead position, cast iron welding, physical testing of welds, wrought iron welding, stainless steel welding, sheet aluminum—plate aluminum—cast aluminum, die cast or white metal, copper and copper alloy welding, lead welding, monel welding, bronze welding, acetylene cutting, operation and cutting with radio-graph, metal spraying, and aircraft welding. 1 year, 9 months.